D-Serine can be easily measured!!

D-Serine Colorimetric Assay Kit

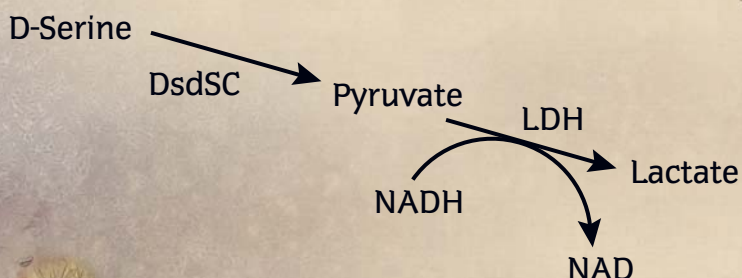
D-form amino acids have been known as components of bacterial cell wall peptidoglycan layers. More recent developments in analytical technologies have demonstrated that D-amino acids are also present in mammals and display specific and important physiological activities. Particularly high levels of D-serine are present in brain tissue where D-serine functions as an important co-agonist of N-methyl-D-aspartate (NMDA) receptors (NMDR), which is involved in regulating higher brain function such as memory and learning. D-serine is suggested to play a role in neurodegeneration associated with diseases such as Alzheimer's disease (AD) and amyotrophic lateral sclerosis (ALS). High levels of free D-serine can also be found in human urine although its significance is unclear.

D-serine is commonly assayed by HPLC or GC following conversion of D-serine to diastereomer derivatives. These methods are time consuming, require expensive instrumentation, and are not suitable for processing large numbers of samples. The D-Serine Colorimetric Assay Kit employs the D-form specific enzyme D-serine dehydratase from *Saccharomyces cerevisiae* (DsdSC) enabling the quantitation of D-serine by spectrophotometric measurement.

Advantages

1. Enzymatic reaction with colorimetric detection for reading on standard UV/VIS absorbance microplate readers (340 nm).
2. Suitable for large numbers of samples.
3. Quantitative for D-serine detection.
   Detection range : 0.01 mM - 1 mM

Principle of Assay



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D-Serine Colorimetric Assay Kit

Operation Procedure

Standard

Standard (80 µl)
Reaction Mix A (160 µl)
↓
Incubate 45 min. at 37℃
↓
Measure absorbance at 340 nm (S1)
↓
LDH Solution (10 µl)
↓
Incubate 45 min. at 37℃
↓
Measure absorbance at 340 nm (S2)

Sample

Standard (80 µl)
Reaction Mix A (160 µl)
↓
Incubate 45 min. at 37℃
↓
Measure absorbance at 340 nm (A1)
↓
LDH Solution (10 µl)
↓
Incubate 45 min. at 37℃
↓
Measure absorbance at 340 nm (A2)

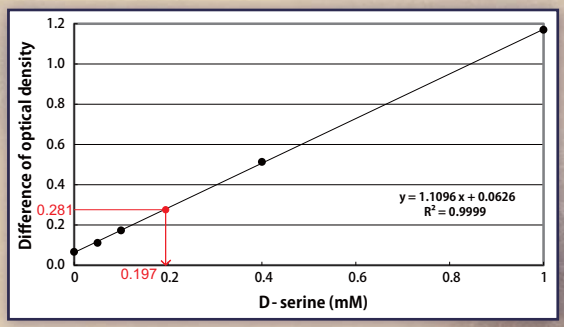
Blank Sample

Standard (80 µl)
Reaction Mix B (160 µl)
↓
Incubate 45 min. at 37℃
↓
Measure absorbance at 340 nm (B1)
↓
LDH Solution (10 µl)
↓
Incubate 45 min. at 37℃
↓
Measure absorbance at 340 nm (B2)

Experimental Example

Table shows typical OD results for D-serine standards and the resulting standard curve.

D-Serine (mM)	OD (S1)	OD (S2)	Net Standard OD (S1-S2)
0	2.040	1.974	0.066
0.05	2.027	1.916	0.111
0.1	2.040	1.867	0.173
0.4	2.049	1.536	0.513
1.0	2.027	0.857	1.170



Following table is an example OD results for urine sample. The net sample OD is 0.281 which coressponds to 0.197 mM of D-Serine from standard curve above.

	OD (A1)	OD (A2)	OD(A1)-OD(A2)	Net Sample OD {OD(A1)-OD(A2)} - {OD(B1)-OD(B2)}
Sample	2.602	2.211	0.391	0.281

	OD (B1)	OD (B2)	OD(B1)-OD(B2)
Blank Sample	2.678	2.568	0.110

↓
D-Serine 0.197 mM
(refer to standard curve above)

Ordering Information

Description	Cat. No.	Quantity
D-Serine Colorimetric Assay Kit	CSR-CT-DSC-K01E	1 Kit

For research use only. Not for diagnostic use.

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